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'Forestburg' switchgrass

STATION BRANCH

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'Forestburg' switchgrass, *Panicum virgatum* L., has been released cooperatively by the Soil Conservation Service (SCS) and the Agricultural Research Service (ARS) of the United States Department of Agriculture (USDA) and by the North Dakota, South Dakota, and Minnesota Agricultural Experiment Stations.

It is a composite of four accessions collected in Sanborn County near Forestburg, South Dakota, in 1956 and 1961. It was tested as accession SD-149 (PI-478001).

Switchgrass, a native perennial, warm-season, sodforming grass, is a major component of the tall grass vegetation which once dominated the prairies of the central and eastern United States. It can be used singly or in mixtures for livestock forage on rangeland, pasture, and hayland. In addition, switchgrass is excellent for wildlife habitat, critical-area seeding, roadside cover, and erosion control.

Because cool-season grasses such as smooth brome grass and crested, tall, intermediate, and pubescent wheatgrasses predominate in many areas, forage is often in short supply during summer months. Sudangrass or sorghum-sudan hybrids are productive alternatives for midsummer forage; however, they must be reestablished each year. Switchgrass grows rapidly after June 1 until late summer and provides large quantities of forage for livestock grazing when high temperatures retard the growth of cool-season species. Proper management of cool- and warm-season plants ensures good forage indefinitely.

Description

Switchgrass grows 3 to 5 feet tall. Even as a young plant, it can be distinguished from other native grasses by the dense patch of hairs at the point where the blade attaches to the sheath. The stem is round and usually has a reddish tint. The seed head (panicle) is spreading and open. The plant spreads by short underground rootstalks. Forestburg is typical of the species with regard to these characteristics.

Performance

The phenology, forage quality and quantity, palatability, and wildlife habitat potential of Forestburg have been documented in advanced evaluation studies and field plantings under conditions of actual use in North Dakota, South Dakota, and Minnesota. Forestburg has demonstrated outstanding winter hardiness and seed production. Forage production exceeds that of the northern source NDG-965-98 and is equal to, or greater than, Nebraska-28. Production at nine locations over an 11-year period averaged 6,000 pounds per acre. At northern sites, the cultivars 'Summer,' 'Pathfinder,' 'Blackwell,' and 'Cave-In-Rock' from southern origins produce more forage in short-term plantings. Over a period of several years, however, pressure from grazing, drought, and winter injury reduces stands and decreases forage production of the southern cultivars in northern areas. In a 3-year grazing study at the University of Minnesota, West Central Experiment Station, Morris, Minnesota, average daily gain from Forestburg was 1.8 pounds per day. Flowering (anthesis) data recorded at Fergus Falls, Minnesota, show Forestburg to be 24-27 days later than the northern source NDG-965-98, 3 days earlier than Nebraska-28 and Sunburst, and 30 days earlier than Pathfinder, Blackwell, and Cave-In-Rock.

Establishment

Switchgrass and other warm-season grasses require a soil temperature of above 50 °F for satisfactory germination. In the area of adaptation, the optimum time to plant is early May to late June. Dormant seedlings have not been successful. The seed is clean, free-flowing, and easily seeded with most grass drills. Recommended seeding rate is 4 to 5 pounds of pure live seed per acre.

The planting site should be free of perennial or noxious weeds. A moist, firm seedbed is essential. Firming the soil with a roller packer before seeding helps ensure that the seed is placed at the recommended seeding depth of one-fourth to one-half of an inch. Broadcast-packer seeders or drills equipped with double disk openers and depth bands provide the best results. Companion crops are not recommended. Grazing should be deferred during the establishment year.

The application of fertilizer at seeding time is not recommended because it will stimulate weed growth. Atrazine can be applied, according to label instructions, to help control weeds during the establishment year.

Seed Production

Stand establishment usually can be accomplished in one growing season. Seed production can be expected the second year and will continue indefinitely. The fields should be established in rows 30 to 42 inches apart. Use Atrazine and 2,4-D to control broadleaf weeds and unwanted cool-season grasses, according to label instructions. Apply irrigation water at the boot and immediately after the flowering stages. Apply 60-80 pounds of nitrogen per acre and phosphorus and potassium according to soil tests. Seed matures in September. Harvesting can be done by windrowing when the seed is in the hard-dough stage; or direct harvesting, when the seed has fully matured. When direct harvesting, seed must be dried as soon as possible because damage may take place from heating. Switchgrass has small, heavy, smooth seed that makes harvesting and cleaning easy. Average purity and germination is 95 and 85 percent, respectively. Seed yields average 300 pure live seed per acre under irrigation at the SCS Plant Materials Center, Bismarck, North Dakota.

Management

If well-established stands of switchgrass are properly managed and maintained, they should not require replanting. Poor stands can be rejuvenated by using proper management practices such as controlled grazing, the application of recommended rates of herbicides and fertilizer, and prescribed burning prior to the beginning of spring growth. Phosphorus and potassium fertilizer should be applied according to soil tests. Nitrogen should be applied at the rate of 50 to 75 pounds per acre when regrowth in the spring has reached 4 to 6 inches.

Forage quality will remain high until the seed head emerges. Grazing should begin from mid-to-late June when grasses reach 12 to 16 inches in height.

Overgrazing can cause stands to decline; therefore, grazing should be stopped when plants are grazed to within 8 to 12 inches of the ground. If more than 12 inches of regrowth takes place, plants can be regrazed to within 6 inches of the ground. Leaving 12 inches of stubble before frost allows the plants to store carbohydrates and ensures the production of vigorous plant growth in the spring.

Adaptation

The known climatic adaptation of Forestburg is the shaded area on the map. It is best suited to light- or medium-textured soils and will tolerate moderately saline or alkaline soils. It will withstand droughty conditions and can be used on such sites for ground cover, but it is better suited to deep or well-drained or moderately wet soils for seed and forage production. Precipitation for its area of adaptation ranges from 15 to 30 inches.

Availability

The Agricultural Research Service (Northern Great Plains Research Laboratory, Mandan, ND 58554) maintains the breeder seed for Forestburg switchgrass; and the Soil Conservation Service Plant Materials Center (P.O. Box 1458, Bismarck, ND 58502) maintains the foundation seed.

For more information on availability and use of Forestburg switchgrass, contact the local SCS or conservation district office. All programs and services of the Soil Conservation Service are offered on a nondiscriminatory basis without regard to race, color, national origin, religion, sex, age, marital status, or handicap.



Area of adaptation of
'Forestburg' switchgrass



